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VOL. XXIII No. 257 MARCH 14, 1957 PRICE ONE SHILLING AND SIXPENCE

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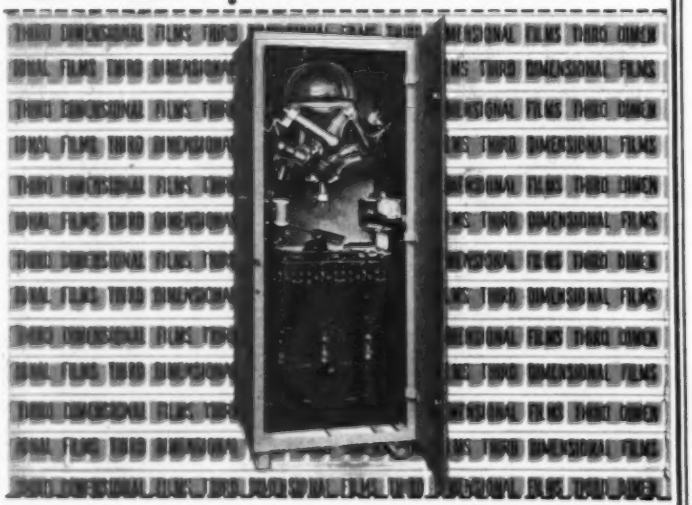

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Practical Aspects of . . .

MAINTAINING YOUR SCREEN

By L. TOWNES, Manager, Andrew Smith Harkness, Ltd.

CINEMA screens have progressed considerably since "polarised 3-D" hit our cinemas; from that time there has been a general move towards maximum efficiency from the screen. No longer are screens just something to shoot the picture on, which had to be painted white about once a year; the screen is now regarded as an important link in the projection system and as such should be carefully maintained.

In considering the subject of screen maintenance, it is valuable also to review the types of screens in use today.

The two extremes are the white matt, which may be either a coated, fireproofed cotton fabric or matted Polyvinyl-chloride sheeting, and the crystal beaded screen, neither of which can be used for three-dimensional projection.

White matt screens are extremely wasteful as they reflect light uniformly in all directions with an efficiency of approximately 73 per cent. Obviously, such screens put the same light intensity on the ceiling and walls as into the audience, and so are inefficient, but they have the virtue of being uniform.

Glass-Beaded

The glass-beaded screen is almost the reverse, being highly directional, and this is really suitable only for comparatively narrow auditoria or where the side walls are almost parallel and the screen is as wide as the seating blocks. However, the high gain of this type of screen is excellently employed for "CinemaScope" projection in many cinemas in this country, including the largest in Great Britain, where a wall-to-wall screen is installed.

Although beaded screens are unsuitable for stereoscopic projection, as they depolarise light, they are the most probable solution to deep curve requirements. The Todd-AO system, which employs a very deeply curved screen, brings with it a problem known in America as re-illumination. This is light being reflected from one side of the screen to the other, tending to wash out the picture in a complex manner.

Having carried out many experiments, I believe that the glass-beaded screen is the most suitable for very deep curve applications, short of the multitude of vertically disposed narrow strips as employed for "Cinerama." Glass beads on a screen have similar properties to the "cats' eyes" on our roads, i.e., they tend to reflect light back towards the source, and for this reason the re-illumination is much less than with other types of surface.

Aluminised

Undoubtedly, aluminised (silver) screens have proved very successful in providing the gain and control required by wide screen and CinemaScope projection systems, not forgetting 3-D, for which they were essential.

Now we have developed an improved surface, the Perlux, which has a greater total reflectance and increased wide-angle performance on account of its translucence and utilisation of the white matt surface behind the finish.

All these screens require careful attention and the conditions under which they are used should be carefully studied. The greatest enemy of screens are air currents, these cause uneven dust deposits and staining. Efforts should be made completely to eliminate air currents through the screen by sealing off the back. It is not sufficient merely to hang a backcloth, it should be tacked round the speaker baffle and tied around the HF horn; the edges should be tied as close to the screen webbing as the masking movements will allow, but great care should be taken that the backcloth does not hang against the back of the screen.

Screens should be brushed regularly, approximately every 14 days, and vacuum cleaning every six months is recommended but should, of course, be very carefully carried out. Check your lacing occasionally and tighten when necessary, but avoid pulling too tightly on the sides as it is possible to pull the screen out of its correct curvature.

I am frequently asked what should be done when a screen is soiled by ice cream cups, etc. The affected part should be washed as soon as possible after the incident: don't wait until next morning. Use clean warm water which should be frequently changed, and paper handkerchiefs; gently wash the surface but don't use the paper too wet as watermarks are almost inevitable, but can be minimised in this way. If oil from tracks gets on to the screen it may be removed with white spirit or turps substitute, but great care must be taken, and, finally, the area should be washed with a little soft soap.

Obviously, screen curtains will prolong the life of a screen surface, but care should also be taken to open the masking to maximum height and width before closing the tabs after the last performance every night.

Air Currents

Air current in the theatre near the screen should be checked as although the plenum input and extract may be nowhere near the screen there may be draughts in that order which cause premature tobacco staining, etc.

Where the boiler house is at the screen end of a cinema, attention should be paid to the run of hot pipes in the vicinity of the screen. These could cause marking of the surface due to convection currents, if not suitably lagged.

Examination of the back of the screen will often show clearly the effect of draughts which may not be seen on the aluminised surface. If an extract fan is causing trouble it may well be more economical to re-position the fan than change your screen prematurely.

If a photometer can be borrowed and used as a light meter there is a very simple but accurate method of checking the condition of a screen surface. First, measure the incident light on the screen when the projector is running without film in the gate, and note the reading. Then turn the meter round to face the screen at about 2 ft. 6 in. from the surface and note the reading; the reflected light should be at least 60 per cent. of the incident light. This method only measures total reflectance and is not affected by angular distribution, however; it clearly indicates the condition of a screen surface.

The time is approaching when many exhibitors will have to make a decision as to what steps to take to overcome their loss of screen brightness due to surface deterioration. Before a reconditioned or new screen is installed the pattern of deterioration should be studied, as, frequently, much can be learned. Steps should be taken immediately to rectify any draughts before the new screen goes in.

Screen Design

Screen design is still receiving much attention from the engineers of the big circuits at home and overseas. The presentation of an adequate picture depends on many factors, such as arc lumens, print density, light transmission, properties of lenses, screen area and the condition of the surface. Generally speaking, the screen area today in most cinemas is twice what it was in early 1953. For this reason an increase in apparent reflectance of 2:1 over that obtained with a white matt screen is desirable. This requires a gain from the screen surface of 1½:1 over a solid angle of 90 deg. in the horizontal plane, and most manufacturers aim at producing screens with such characteristics.

Obviously, the gain from screen surfaces begins to diminish after 12 months' use and in most cinemas the gain after two years is reduced to a level that demands attention and where the screen requires resurfacing. This, of course, can only be satisfactorily carried out at the factory and usually a reconditioned replacement to required standards is made available by the manufacturer.

Resurfacing

In my opinion, resurfacing on site is a risky business due to fire hazards, misting of paint on to curtains, stage drapes and footlights. It is also doubtful whether the result will be all that will be desired when the job is done; but if the factory-reconditioned screen is not acceptable, the works may be made to effect another replacement, although naturally not without some reluctance!

Exhibitors are sometimes appalled by the cost of replacement screens, but when they consider that the silver screen has achieved results that otherwise might have necessitated new rectifiers, arcs and higher carbon consumption, in addition to having the white screen resurfaced every nine months or so, they should realise that it is reasonable.

The IDEAL KINEMA

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FUTURE ISSUES

Commencing with the April issue, THE IDEAL KINEMA will no longer be published as a separate publication, but it will continue to appear as a regular monthly supplement incorporated in the KINEMATOGRAPH WEEKLY.

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From Theatre to Cinema

The Empress, Brixton, Becomes The Granada

ARCHITECT:
David E. Nye and Partners

CONVERSION of a live theatre to a cinema is a rarity nowadays: it has been successfully achieved by the transformation of the Empress theatre, Brixton, into the Granada cinema.

The change was made with the minimum of structural alteration either outside or in. Actually the corner frontage, with its eye-catching tower, was not structurally altered at all, but its appearance was changed radically by repainting in two tones of grey, with a rectangular pattern in black over the main entrance. Only embellishment on the tower is a new Granada sign in neon lettering set vertically.

Main entrance doors are black with yellow reveals for contrast. The canopy is in typical Granada style, white lettering with black shadowing being set in a green frame.

It is in the foyer that the biggest alterations were made. The former side entrances to the theatre have been sealed off entirely, and the theatre's advance booking office, which occupied the greater portion of the L-shaped foyer has been removed entirely.

A new pay-box has been recessed into the corner of the "L," immediately facing the main entrance doors, and a new entrance to the stalls has been cut in the wall close to the original staircase leading to the balcony. An important factor in this change is that access is now to the rear of the stalls instead of to the front.

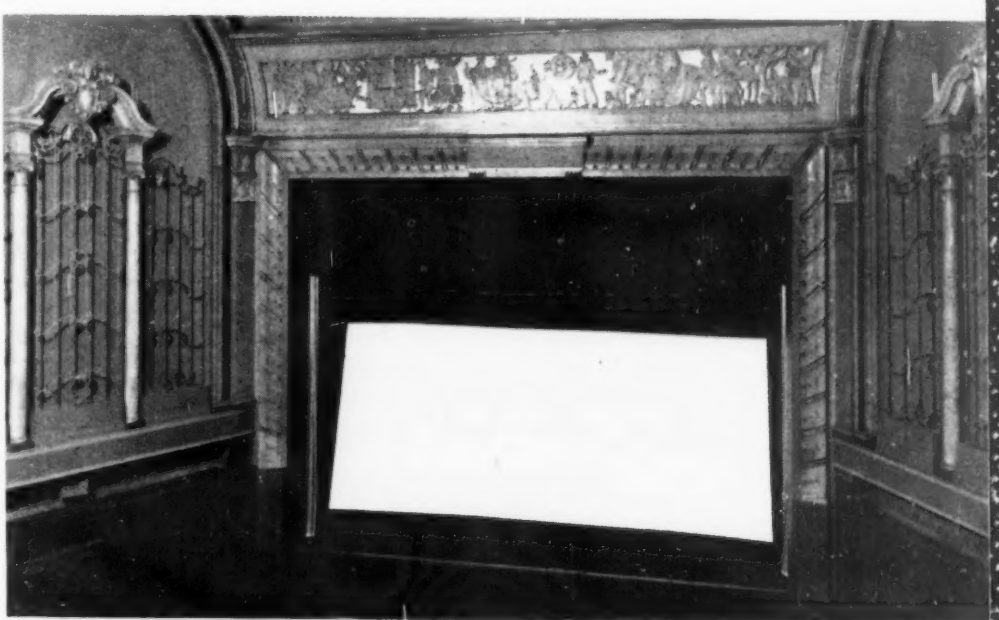
In the other "branch" of the "L" a standard Granada sales kiosk has been constructed to occupy the whole of the end wall.

The foyer has red and brown painted walls and a cream coloured ceiling. The floor is covered with chessboard squares of red and white rubber. The pay-box is faced with green Rexine, decorated with gold studs. The woodwork is mahogany and metal framework is bronze. The kiosk has a bronze metal front and the rear wall, behind the display shelves, is covered with a red and gold wallpaper in a fine trellis pattern.

Alterations in the auditorium are mainly confined to the screen. A Stableford high definition lenticular screen has been installed: it is 38 ft. 6 in. by 16 ft. 6 in. The old apron has been removed and the very old-fashioned theatre drapes have been replaced by modern curtains. The original stage has, however, been retained and it could still be used for live shows if required.

Some of the seating in the auditorium was renewed.

Equipment in the projection suite includes Ross projectors and Westrex sound. Control gear was supplied by A. Buckley.



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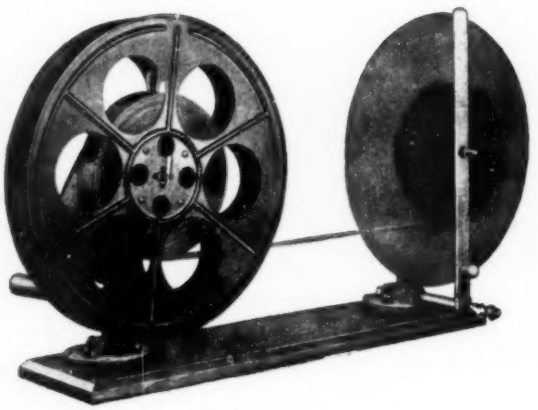

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Enlarged and Modernised

Clifton, Leamington

THE Deputy Mayor of Leamington, Councillor E. Lucas, opened the reconstructed Clifton cinema, Leamington.

To keep pace with modern techniques a wider screen had to be installed and the owner decided to make this an opportunity to provide increased accommodation to install new lighting, heating and ventilation plant, to replan the foyer and generally to reorganise, redecorate and improve the cinema.

This extensive work of remodelling and modernisation was carried out in the comparatively small total of 134 working days: E. H. Burgess, of Leamington, was the general contractor.

The old canopy was replaced and the front of the cinema below this level was redesigned. The foyer and ancillary rooms were replanned: the manager's suite is now on the ground floor and a new ticket and sales kiosk has been built.

One problem that faced the architect, James A. Roberts, ARIBA, was that this was an addition to an older building, part of which would be virtually unaltered, and where, obviously, the original approach had not been the same as the present. The point is illustrated in one instance by the stage. It seemed logical for the stage to be a much less conspicuous feature than is usual and to make it a platform just high enough to raise a speaker above the level of the front stalls to bring him into view of the whole audience. The way this was achieved means that the area which would have been wasted in a stage virtually becomes an extension of the auditorium and the usual sharp cut-off of the stage front is avoided.

Additional seating to accommodate an extra 219 patrons has been provided in the stalls, and there are now 856 stall seats and accommodation for 264 in the balcony. GB-Kalee supplied "Shirwood" chairs and carried out seating renovations. The proscenium curtain for the cinema was also by GB-Kalee, and is made of special Swedish velour.

Carpets were supplied and fitted by W. W. Turner and Co.

Sound and projection equipment is BTH SUPA Mark II, fitted with auxiliary magnetic soundheads and amplifiers to enable it to present both magnetic and optical track CinemaScope films as well as standard films. To produce the illumination required on the large screen, BTH type "H" high intensity arc lanterns operating in the range of 50-60 amperes are installed.

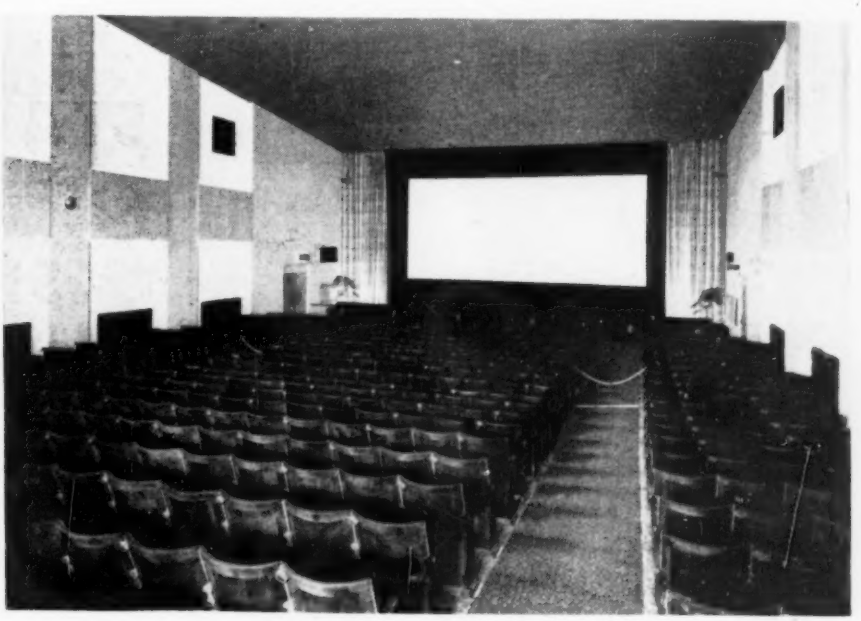
Modifications to the heating and ventilating systems, together with the installation of new oil burning equipment, were also carried out, and the building has been completely rewired and an entirely new lighting system installed. Electrical services include new cables, lighting fittings, emergency lighting batteries, and fluorescent lighting.

Proprietor of the Clifton Cinema is The Stratford-on-Avon Picture House Co., Ltd., directors: J. H. Rowe (chairman); J. R. H. Baker; and H. Brown.

A special feature of the modernisation of the Clifton, Leamington, was the new canopy, shown here as it is when illuminated at night

Emergency Lighting

ONE of the factors that contributes towards public safety in cinemas is the emergency lighting installation. The April issue of THE IDEAL KINEMA will contain a special section devoted to this subject. There will be an article by Dr. Leslie Knopp, technical adviser to the Cinematograph Exhibitors' Association, on the safety regulations governing emergency lighting, and a survey of the equipment and services offered by firms specialising in such installations.



Particular attention was paid to the remodelling of the screen end of the auditorium. These pictures show how the curtains extend right across the width of the theatre, yet are unobtrusive when drawn back

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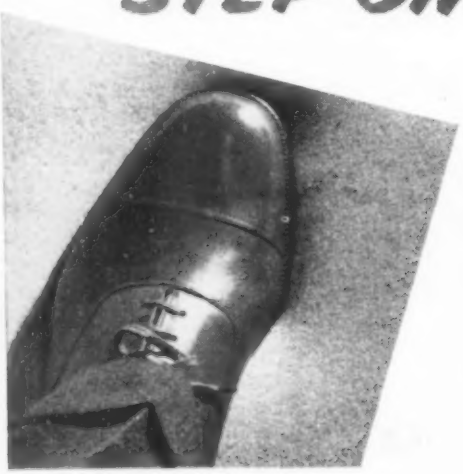

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Talking TECHNICALLY

FROM the day when the arc lamp was first used for film projection inventors have been trying to discover a way of reducing heating of the film. There are probably not many projectionists today who remember using the Pathe water-cell, but the modern equivalent, the Chance heat-absorbing glass, is occasionally used: it has the disadvantage that some means must be provided to remove the heat absorbed by the glass.

Combined air and water cooling of the gate is an excellent idea, but this system does not prevent the film frame heating up as a result of the heat rays absorbed by the image.

The ultimate answer to the problem will undoubtedly be found in the use of an arc mirror which reflects light rays, but transmits heat, so that the heat of the light beam is simply dissipated at the back of the lamphouse. Such a mirror has been made by Eastman Kodak, but apparently it is not capable of withstanding the heat of the arc.

However, it seems that the latter difficulty has now been overcome by Zeiss-Ikon. Ted Driscoll, director of Walturdaw, sends me details of two heat filters which, like the heat-transmitting mirror, employs the principle of blooming. The advantage of this principle is that the heat in the beam is not absorbed by the filter, but is reflected back towards the arc, so that no cooling of the filter is needed.

The principle is the same as that of the purple sheen of a bloomed lens, which reduces light reflection and hence increases the transmission of a lens. The anti-reflection coating consists of a very thin layer of some hard material, deposited in a vacuum upon the surface of the glass. These same coatings can be made in different thicknesses to produce quite different results, and in the case of a heat filter they are made thick enough to reflect the long-wave heat radiation while transmitting light rays.

According to a paper by Dr. Fischer, of Zeiss-Ikon, the thickness of the individual layers of such a coating is about one-fifth of a micron, or just under 1/100,000th inch. A number of such layers, slightly different in thickness, will produce the result that, over a considerable range of visible wave-lengths, the peak of one wave reflected from the coating will correspond with the trough of the next reflected wave, so that reflections are cancelled out, and only about 5 per cent. of the light energy is lost through reflection. On the other hand, up to 85 per cent. of the longer heat waves will be reflected.

Two types of heat filters are made. The KLI 36 removes roughly half of the non-visible heat radiation from the light beam, so producing very effective cooling of the film. The KLI 35, in addition, cuts off part of the visible light rays at the red end of the spectrum, and has therefore a slightly bluish-green cast: the value of this is in modifying the yellowish light of a low-intensity arc to resemble that of HI. As a result, colour films are reproduced with almost the same colour range as with an HI arc.

The coating of the filters is claimed to be hard and resistant to abrasion, and capable of being used with the highest arc currents. The filter is 100-mm. (nearly 4 in.) in diameter and 3-mm. (1/8th in.) thick. It is fitted by means of a spring ring in the front of the lamphouse. Measurements made of the buckling of a test film show that at high light intensities, buckling is reduced to about a third.

I HAD a chat recently with L. F. Rider, Twentieth Century-Fox's engineer, on the subject of magoptical prints, and inevitably the discussion covered magnetic prints in general. Like most engineers, he has been a little surprised that the difficulties predicted on the introduction of magnetic sound have in practice caused so little trouble.

In the early days of CinemaScope, frequent de-gaussing of projectors and splicers was expected to be essential: actually, practically no trouble has been experienced in regard to pick-up of noise on the prints. Occasional de-gaussing is, of course, necessary—perhaps we shall one day see a projector with a built-in de-gaussing coil.

The wholesale loss of sound due to reels of film being placed near motors or transformers during transport was predicted: in fact, hardly a single instance has occurred. It was expected that a number of copies would need to have the sound erased and re-transferred, but this has hardly ever been necessary. On the whole, says Mr. Rider, magnetic prints are standing up better than optical prints.

What a pity magnetic sound was not invented before optical, so that our early worries with optical sound could have been avoided!

I AM a little puzzled by a letter from J. Whitnall, of the Regal, Torquay, who complains of "topping" in the frames of squeezed films. One thing to which I do object on the 2.55-to-1 screen is the enormous close-up of a face with even the top of the head cut off: but this cannot be called topping.

Mr. Whitnall mentions a film which I have not seen, "Brink of Hell." This film was, I discover, released in both WarnerScope and wide-screen versions, but Mr. Whitnall is clear that it is the anamorphic version to which he refers.

I imagine that much of this film would have been shot on location, probably with hand-held cameras; these possibly were not fitted with anamorphics, the picture being squeezed in printing. This is a sheer guess as to how topping could have occurred.

The laboratories must look back regretfully to the days when a film frame had a standard size, and if topping of characters did occur, it was inevitably the fault of the cameraman.

ACCORDING to *Izvestia*, the Russians have developed an improved version of the Cinerama technique.

It appears that the scene is photographed by a three-objective camera, giving a range of view of 150 deg., spread over three negatives. It is claimed that distortions and "jump" that occur along the lines of the junctions of the three projected pictures have been greatly reduced by the use of mirrors within the camera, especially designed by the Moscow Optical Factory.

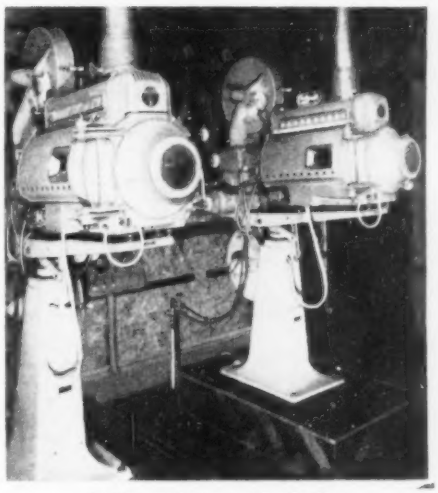
The film is projected on to a concave cylindrical screen by a synchronised triple projector, and the Russian team of experts is now completing equipment for shooting and showing nine-channel stereophonic films.

In the absence of exact technical data it is, of course, impossible even to guess at the efficiency of the Russian system of distortion reduction by mirrors.

THE feature on heating and ventilating last month has inspired L. F. Francis, chief at the Granada, Greenwich, to set down some of his experiences. Apparently, Mr. Francis has made a speciality, almost a hobby, of "doctoring" heating systems.

"My first case," writes Mr. Francis, "was in 1929, when THE IDEAL KINEMA said about the opening of a new cinema in Essex that it would be a good thing when they could quieten the ventilation system. I may say we were only too painfully aware of this, for talkies had arrived. We did a major operation on it, and had the complete fan moved to the other end of the building! Drastic, but those were the days when we even fitted rubber buffers to the seats so that they would tip up quietly.

"My next problem revealed itself because whenever the entrance door (it was a small theatre) was opened, a blast of cold air swept in. I reasoned, therefore, that the extract fan was causing a slight vacuum when, actually, plenum plants are designed for slight pressure in the auditorium. Obviously, the air filters were clogged, due to lack of cleaning. After they had been cleaned the results were such that, with an outside temperature of 30 deg. F., the theatre could be raised to 72 deg. in 1½ hours at 10 lb. pressure of steam."



Philips projectors at Studio Two

Mr. Francis describes similar trouble in another theatre which was always "deadly cold" in winter although there was nothing wrong with the boiler. Here he found that it "was very evident that the washer in the plenum plant" had not been used for years, and, on removal of some of the eliminator plates, the cause of the trouble was obvious: both eliminator plates and heater bank behind it were a solid mass of dirt, so that no air, either warm or cold, was being delivered to the theatre.

Another problem experienced by Mr. Francis was a continual pouring from the mains into the feed tank when there was no apparent leak anywhere. In spite of the fact that the water in the washer tank seemed calm and undisturbed, he drained the tank and found a leak in nearly every brazed joint between the copper verticals and the horizontal steel pipe at the lower level.

Mr. Francis wisely comments: "You will see that it is never wise to accept reasons and excuses at their face value."

ANOTHER West End cinema has installed Philips projection and sound equipment. At Studio Two news theatre, Oxford Street, a pair of FP.7 projectors with Peerless arcs have been installed by J. Frank Brockliss, Ltd. Two years ago, Philips projectors, with complete stereophonic sound, were installed in Studio One.

When these two theatres were constructed over 20 years ago, the projection equipment was also installed by Brockliss. It was as a result of the eminently satisfactory service given by the Philips machines in Studio One that it was decided to install similar equipment in Studio Two.

An important factor in the choice of equipment was the large number of trade shows screened in Studio One.

Like all Philips installations, the amplifier system is completely duplicated. Inside the cabinet are two power units and two amplifiers, ensuring complete protection against breakdown. Because of this stand-by equipment, regular servicing is not considered necessary, although an efficient service organisation is available in case of need.

So far Studio Two is equipped only for wide-screen projection, the screen measuring 16 ft. x 9 ft. 9 in. Provision is made for the addition of facilities for anamorphic projection as soon as this becomes desirable. Already Brockliss has installed the electrical gear for the variable screen masking.

Acoustically Studio Two presents certain difficulties, since the auditorium has a large volume in relation to the seating area, the balcony being high above the stalls. Particular attention was therefore paid to the speaker assemblies, which are unusually generous for a small theatre. They comprise two bass cabinets each with two 15 in. cone speakers, a 4 x 2 multicellular unit feeding the stalls, and a 3 x 2 unit feeding the balcony. Tests have shown that in every part of the auditorium, sound quality is excellent.—R. H. C.

Lamps and Lighting

Panelled Ceilings

by "Luminaire"

A NEW approach to integrated fluorescent lighting which can be applied to small cavity false ceilings, is based on the use of white plastic louvres held in " Z " section side supports. The latter are shaped, translucent polystyrene extrusions and are so fitted within a ceiling aperture as to form a self-supporting shallow unit.

The fluorescent fitting, which can be a general purpose single or twin tube batten, is supported from the main structure in the normal way so that the lamps project below the false ceiling panels.

The injection moulded opal louvres, which are 1½ in. square and 1 in. deep, provide an adequate degree of shielding, and the side transmission ensures that the ceiling is not left in comparative shadow.

The advantage of utilising plastic materials for louvred panel treatments generally is that their process of moulded production avoids any possibility of distortion as so often occurs in fabricated metal sections. Other advantages are absence of peeling, a frequent occurence with applied metal finishes, and ease of supporting due to lightness in weight.

One firm specialises in the supply of louvred panels complete with a patented hanger system of support. A simplified method of panel hingeing facilitates reclamping and servicing.

All such schemes, however, require cavities of adequate height which permit of a lamp spacing/height ratio not greater than two to one. If this limit is exceeded, undesirable brightness contrast between adjacent louvre sections will result.

Dimming Control

THE fact that the light output of fluorescent lamps can be varied by electrical dimming has opened up new fields of application, many of which can be found in cinemas.

The production of coloured light becomes a much more economical proposition, using the appropriate type of fluorescent tubes as compared with a tungsten lamp and subtractive colour filter; consequently the radiated heat produced is less and electrical loads are greatly reduced.

The " full-up " load of 18-80 watt fluorescent lamps, for instance, is a quarter of that of a series of 120-60 watt tungsten filament lamps having approximately the same light output. When dimming down to " quarter light " the lamp load ratio is reduced to about a tenth.

Indirect lighting schemes of the cove or cornice type can be carried out with a triple series of coloured fluorescent lamps which can be colour changed either by manual control of electronic dimmers, or on a pre-set cycle.

For small installations, Thorn Electrical Industries, Ltd., has compact 5 or 20 step rotary dimmer switches for controlling one to four 5 ft. 80 watt or pairs of 2 ft. 40 watt fluorescent lamps. The tubes must be of the " quick start " silicone treated variety with an earthed conductor in close proximity.

Floral Theme

MANY manufacturers are designing fittings based on a simple illuminated " flower " theme comprising an aesthetical combination of metal rod stems and small, tulip or round, white bulb lamps. Many of these have an attractive appearance, even when switched off, and will harmonise with most forms of interior decor.

A range of multi-lamp units for ceiling, wall and table use is now being marketed by Kaydell Light Fittings. These could be employed for both decorative and useful illumination in foyers, lounges and restaurants.

The triple stem wall bracket, aptly named " Tulipe," could even be installed in auditoriums. Metalwork is in brass, polished and lacquered, and the main body and lampholder cups are supplied in natural or stained beech. The " Fleuri " is an elegant six-lamp pendant which retails at £8 8s. including PT.

Technical Service

AN example of the technical service offered by Sound and Scene Services (London), Ltd., occurred recently. Late one Saturday night, Sidney Goldwater, the managing director, received a phone call from a cinema 100 miles from London to the effect that the generators had broken down.

Fortunately two Nevelector rectifiers were in stock. First thing Sunday morning they were shipped by road to the cinema, where the SASS engineers quickly installed them and connected up, allowing the show to open as usual.

At the Royal, Edgware Road, London, a pair of reconditioned Simplex projectors, virtually equal to new, have been recently installed.

Another recent job was the installation of Peerless Magnares at the Empire, Alfreston.

Improved Seating

Four cinemas are putting in more Dunlopillo seats through Dawsons (Seating), Ltd., London: the Orient, Aston, Birmingham (506); the Picture House, Edgbaston, Birmingham (1,068); the Ritz, Maidstone (975); and the Regal, Putney (818).

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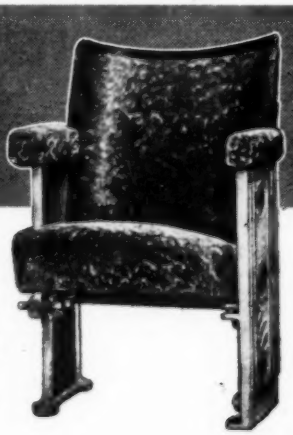

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FURNISHINGS SURVEYED

An important aspect of the attraction and comfort of a cinema lies in the quality and good taste of its furnishings; the materials used for the curtains and seat coverings. Many factors are involved in this sphere of decoration and "The Ideal Kinema" here presents a review of products and services available from a number of the companies that specialise in this subject

Beck and Windibank, Ltd.

DURING the past six reigns Beck and Windibank, Ltd. has been manufacturing curtains and stage draperies and, today, is supplying these not only in the United Kingdom, but abroad as well: at present the company has an order for stage draperies in Nairobi.

Where necessary the firm will prepare comprehensive schemes, submitting to the customer a stage lay-out in plan and section, together with detailed and itemised quotation.

Among a very large number of contracts executed by Beck and Windibank are work at the following: Futurist, Birmingham; Scala, Liverpool; Capitol, Dundee; Capitol, Cardiff; Picturedrome, Eastbourne; George, Belshill; Grange, Birmingham; Gaiety, Hastings; Abbey, Liverpool; Gaumont, Bristol; and Odeon, Newport; as well as the D'Oyly Carte Opera Co.; the BBC, Birmingham; the King's Theatre, Edinburgh; Theatre Royal, Glasgow; Opera House, Manchester; and Grand Theatre, Leeds.

British Replin, Ltd.

RECENTLY British Replin developed a new series of designs on a basic theme that enables it to provide an unusual combination of pattern and background colour: maximum delivery of this is two to three weeks.

All Replin fabrics have the quality of being woven on the tapestry principle, and are, in fact, the result of many years of investigation on the part of the founder of the company, Dr. Banyai, into the possibility of adapting power looms to produce a weave similar to that of the Gobelin tapestries.

Furnishing fabrics are available in a wide range of plain colours and standard designs. Special designs for upholstery and decorative panels are also woven to order.

Fosters (Decorations and Curtains), Ltd.

EXTENSIVE stocks are held by Fosters of velours, satins, brocades, printed linens, cretonnes, damasks, twills, sateens, and linings.

The company's service includes the processing of new fabrics to render them flame-proof, repairs, and the cleaning and flame-proofing of old curtains.

There is a design department that deals with any inquiry, and suggestions for curtains and draperies are drawn up in colour. A special service is provided for exhibitors in respect of curtains and draperies. Fosters send hampers to the customer (keys under separate cover) so that the curtains can be returned for inspection and report.

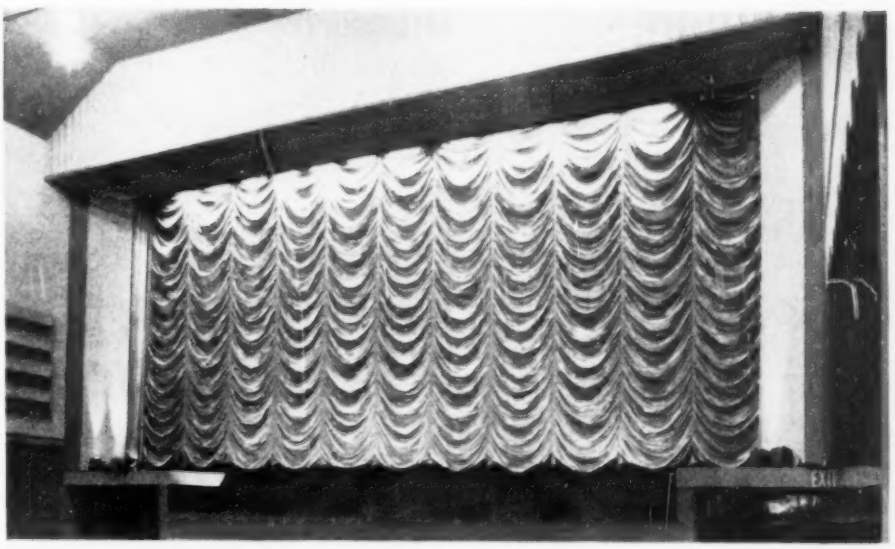
Three recent installations were at the Regent, Penrith; the Regal, Carlisle; and the Cinema, Ambleside. In each of these situations Fosters supplied all draperies and curtains, including the attractive festoon type of curtain.

GB-Kalee, Ltd.

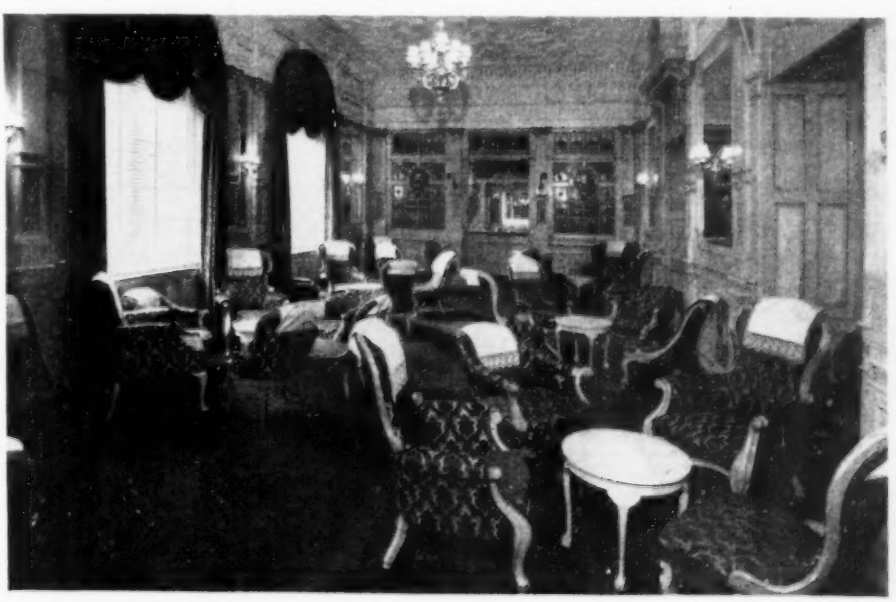
CINEMAS across the world, from Birmingham to Bangkok have stages furnished with curtains which bear the mark "GB-Kalee" Standardisation is not possible, and indeed would not be acceptable in the design of stage drapes; each situation has individual requirements and limitations, which necessitate careful consideration of colour, material, trimmings, and the actual type of curtain, to achieve the best effect. In styling curtains it must first be decided whether they are to "traverse," "reef," "contour" or "fly," and, since the advent of CinemaScope, this decision has rested on the space available to take the curtains when "off."

Where off-stage space is available the simple "traverse" or "draw curtain" is still employed.

continued on page 13



Curtains installed by Fosters at the Regal, Carlisle



GB-Kalee supplied a specially woven carpet to match curtains and chairs at the Pigalle, Liverpool

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IF you are a subscriber and require information on any of the items listed, or other subjects, fill in the form below and send it, together with precise information as to your needs, to The Ideal Kinema Service Bureau. We shall be pleased to forward the names of manufacturers or suppliers. We cannot, of course, provide professional consultancy services, but we can put you in touch with specialists who can help you with your problem.

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Furnishings Surveyed—contd.

The "festoon" or "vertical reefing" curtain has commanded more attention in the past three or four years than ever before. This type needs no off-stage space, but merely a few feet of height behind the proscenium arch, and is ideally suited to those halls where the new picture width extends from side wall to side wall.

The "contour" curtain probably calls for more skill on the cutting bench than any other type of drapery. Flexible in hanging shape and decorative quality, the contour demands full attention to detail, bearing in mind the final shape or shapes within the framed opening. There is now available an ingenious pre-set contour gear which allows a single curtain to take on an infinite number of shapes and folding effects.

The "flying" curtain (more commonly known as the "act drop"), is only practical for use on stages where there is at least double the proscenium opening height to the stage grid. This form of drape may take on any appearance, ranging from the ordinary flat painted curtain to those richly embellished with swags and overdrapes.

GB-Kalee also supplies and installs curtains and drapes for every other part of a theatre, foyer, retiring rooms and boxes. One of its strong points is the decoration and embellishment of curtains and drapes with applique work, sequins and spangles.

The company supplies every manner of floor covering, including carpeting, linoleums and Cellulin decorative flooring, and rubber flooring. Every type of carpeting, is also available from GB-Kalee. For cinema purposes the five-framed patterned super Wilton carpet has been generally favoured, with a good quality plain Wilton as second favourite for theatres not subject to very heavy usage.

Semi-festoon type of curtain installed by Modernisation, Ltd.

Johnson's (Bournemouth), Ltd.

ALL FORMS of furnishing services for cinemas are included in the organisation of Johnson's (Bournemouth), Ltd.

The company has its own workrooms for the manufacture of all types of stage curtains and drapes in all suitable types of material.

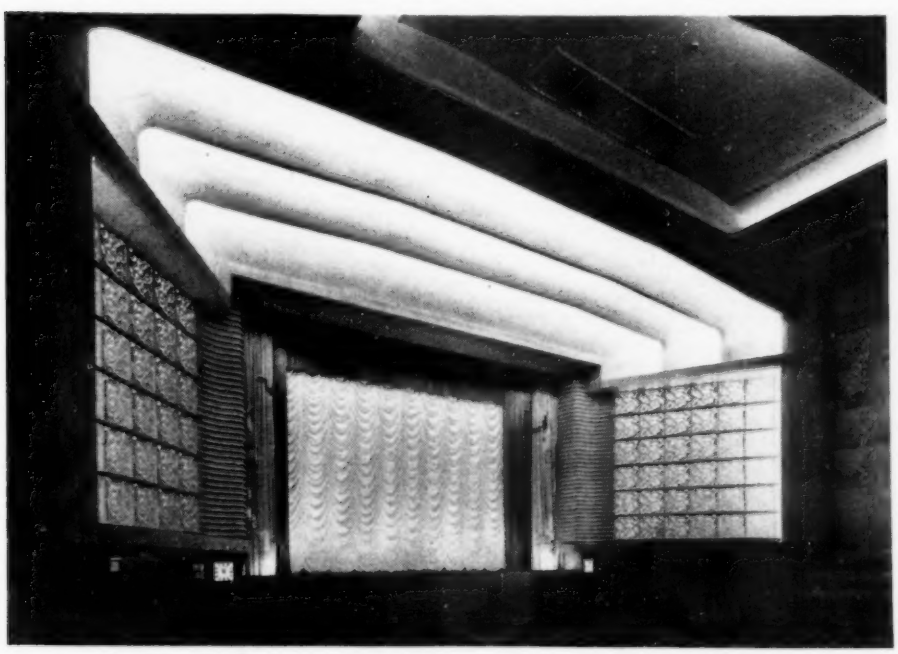
Johnson's operates a transport service for exhibitors wishing to transfer equipment or furnishings from one cinema to another, and also has facilities for cleaning, dyeing, re-fireproofing and adapting existing curtains.

The company is also area agent for Hall's Stage Equipment, Ltd.

H. Lazarus & Son, Ltd.

SINCE 1872 Lazarus & Son has been specialising in stage draperies (as well as, of course, tip-up chairs) and it claims to be the oldest manufacturer in Great Britain of this class of goods.

In the long period it has furnished some of the finest theatres in the world, and employs an expert staff for planning seating lay-outs and the most effective draping of stages. The company manufactures all types of cinema and theatre stage and other draperies, and supplies stage curtain tracks and similar ancillary equipment.



Festoon curtain installed by Beck and Windibank at the George, Bellshill, Glasgow

Among the many services offered by the company, which has a large number of commissions abroad, is that of advising on other equipment which is obtained and supplied on the usual shiping commission.

Modernisation, Ltd.

SERVICE offered by Modernisation, Ltd., includes specialist advice and planning in all matters relating to curtains, stage gear and other aspects of cinema furnishings.

Experience gained in many installations has enabled the company to devise means to overcome many of the difficult problems that are often met in planning or re-planning stage curtains to give facilities for wide-screen presentation.

The company undertakes the supply and installation of all kinds stage, door and window curtains and tracks and reefing equipment, as well as pelmets. Recent installations were at the Hippodrome, Holyhead; and the Triangle, Birmingham.

Sound and Scene Services (London), Ltd.

IN ADDITION to being sole agent in London and the South of England for Lazarus seating Sound and Scene Services (London), Ltd., supplies curtains and drapes of all types, including complete stage curtaining and control gear.

The company is also registered supplier of carpeting by leading manufacturers. A large carpeting job recently executed was at the Royal, Edgware Road, London, where the whole of the circle was re-carpeted, necessitating the removal and replacement of the seating. The work was carried out between the end of the programme on Saturday and the opening on Sunday—a feat made possible only by experience and pre-planning.

W. W. Turner & Co., Ltd.

FOR MANY years W. W. Turner and Co., has specialised in all aspects of cinema furnishings.

The Turner range of seating, scientifically designed for body comfort, is, of course, well known to the industry.

Screen curtains and operating gear, stage sets, house curtains, and carpets in contemporary and classical designs, are also Turner specialities in which they offer a large range of colours and designs.

THE IDEAL KINEMA

PROJECTIONISTS' SCHOOL

By R. H. CRICKS, FBKS, FRPS

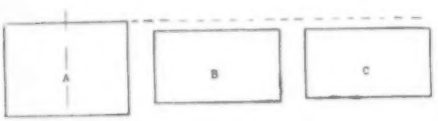
Projection We have so far considered the essentials of orthodox projection which, by and large, have persisted since the introduction of sound nearly 30 years ago. Four years ago the American film industry decided that the cinema must have a new look, and the modern techniques of projection were born—CinemaScope, wide-screen, later VistaVision and others. These new techniques have had a certain effect upon the projector.

The major change is, of course, in the shape of the picture. In the old days, the film was photographed through a camera aperture measuring .868 in. by .631 in., and in the projector the aperture was slightly smaller—.827 in. by .602 in.—so that the edges of the picture should not be projected. It seemed to us nothing short of heresy that the first effect was the scrapping of these dimensions; the term "aspect ratio" became familiar, and in the projection room there appeared a row of hooks carrying a variety of aperture plates.

Aspect ratio is simply the ratio between the width and height of the picture—generally the picture on the screen. The standard aspect ratio was:

$$\frac{.827}{.602} = 1.374 \text{ to } 1.$$

By reducing the height of the aperture, and so cutting off part of the picture, the aspect ratio was increased and wide-screen was born. The sketch

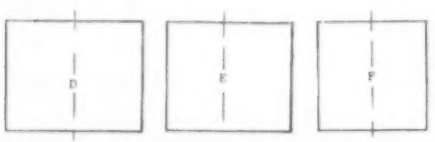


Projector apertures:— A—standard (1.374:1): B—wide-screen (1.75:1): C—wide-screen (1.85:1)

shows the standard 1.374 aperture (*A*) compared with the apertures for the two commonly used ratios, 1.75 (*B*) and 1.85 to 1 (*C*).

But the beginning of the new techniques was actually CinemaScope, which uses the anamorphic principle developed back in 1931 by Professor Chrétien (it was not invented by him). The optical principle of this we will discuss later; briefly, it means that the picture is magnified by 2 sideways, as compared with the vertical magnification.

The CinemaScope standard makes use of every scrap of the area of the film (unlike the standard and wide-screen systems, which waste space between



D—CinemaScope magnetic (2.55:1): E—CinemaScope optical or magoptical: F—old type Superscope (2:1)

pictures) and the aperture size is increased to .912 in. by .715 in. (*D*). Since the former dimension is magnified by 2, the aspect ratio becomes:

$$\frac{.912 \times 2}{.715} = 2.55 \text{ to } 1.$$

Then came the demand for CinemaScope prints with optical sound tracks. To provide room for the track, a slice was cut off the side of the picture reducing the width to .839 in. (*E*), and giving an aspect ratio of:

$$\frac{.839 \times 2}{.715} = 2.35 \text{ to } 1.$$

Last month THE IDEAL KINEMA printed particulars of the new magoptical print; this has the same frame size as the CinemaScope optical print, and, therefore, the same aspect ratio. There have been other proposed aperture sizes—for instance, SuperScope originally had a 2 to 1 ratio, which ratio is also recommended for VistaVision prints.

A complication is that in most cinemas the picture is projected at a rake, which, especially in conjunction with a curved screen, causes distortion of the picture. To conceal this, the picture is shaped to fit the desired screen masking, which means that the aperture plates are rarely the neat oblongs shown in the sketch, but more often have the sides slightly curved or out of square.

□ □ □

Electricity The life of an accumulator depends on how it is treated. In most modern cinemas the secondary lighting is fed from a battery of lead-acid cells, so this is the type of battery which we will consider. The alkaline cell needs rather different treatment.

First, it is important that a battery should never be run down below a certain minimum voltage, generally reckoned as 1.8V per cell. It should be regularly charged to full voltage of 2.6 or 2.7V per cell on open circuit; over-charging within reason will do no harm. Charging should be spread over a period of 8 or 10 hours; a heavy discharge current is harmful—a heavy current in either direction will tend to pull the paste off the plates and ruin them.

I explained last month how the specific gravity of the acid falls during discharge. When a battery is fully charged the sp. gr. should be about 1.250, according to the manufacturer's recommendations, and when discharged it may drop to about 1.150. Specific gravity is measured by means of an instrument known as a *hydrometer;* in one form this is rather like a fountain-pen filler, but it has two or three coloured balls inside, one or two of which will float in the liquid, according to the sp. gr. A reading should be taken every time the battery is charged.

After a time it will be noticed that the level of the acid has fallen, exposing the tops of the plates. Remember it is chiefly the water in the acid that has evaporated, and only water must therefore be added—distilled water, to prevent unwanted chemical reactions. The terminals should be occasionally smeared with vaseline to prevent corrosion.

When the battery is nearing its fully charged state, the electrolyte bubbles and gives off gas. For this reason, it is very important that the battery should be installed in a room with ample ventilation. The fumes will cause rusting of tools or other steel objects.

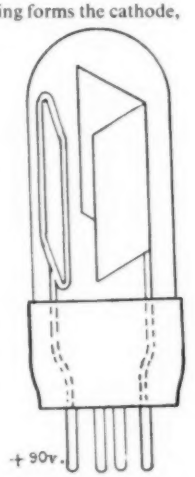
□ □ □

Sound We have seen during recent months how in the sound head the film is moved at a perfectly constant speed past the scanning point, where a narrow beam of light falls upon it and passes through it. The modulations in the sound track make this light fluctuate, and the fluctuating light falls upon the photo-electric cell.

The job of the photo-cell (also known as the PEC) is to convert light into electricity. There are several types of cells used for this purpose, but so far as the sound head is concerned only one general type is used.

There are certain metals which quite easily part with their electrons when light falls upon them. If such metals are enclosed in an evacuated glass bulb, these electrons manage to get right away from the surface of the metal. If you look at a photo-cell you will see either that the inside of the bulb is silvered, or more often there is a piece of silvery metal bent into the V shape; in either case it has a very thin coating of a rare metal called daesium. Inside the bulb is also a loop of stiff wires.

The metal plate or the silvering forms the cathode, which gives off electrons under the influence of light. The piece of wire is the anode; it is maintained at a positive potential of 90V, and attracts the electrons which thus constitute a flow of current.



A typical photo-cell

But a photo-cell in which the electrons travel in a vacuum, although used for some purposes, is very insensitive. The current can be very much increased if a tiny amount of gas is put in to the glass bulb. What happens is that electrons on their way to the anode bump into the molecules of gas, and in doing so knock out additional electrons. These in their turn knock out further electrons, and so the current is increased snowball-fashion.

All this happens, of course, in a very short space of time—or, to put it another way, we can say that the modern photo-cell will work at very high frequencies, far higher than we need for sound.

□ □ □

Homework

1. Why in a lead-acid cell is the specific gravity of the electrolyte an indication of the state of charge?

2. The height of a cinema screen is fixed at 14 ft. What will be the width of the picture for (i) wide-screen projection at 1.85 to 1 aspect ratio; (ii) CinemaScope projection with optical sound; (iii) CinemaScope projection with magnetic sound?

3. What focal length of lens will be needed in each of the above cases, if the throw is 85 ft.?

□ □ □

Answers to Last Month's Homework

1. In the discharged state the number of cells needed will be:

$$\frac{110}{1.8} = 61 \text{ cells.}$$

When fully charged the number of cells needed will be:

$$\frac{110}{2.3} = 48 \text{ cells.}$$

Therefore a battery of 60 or 61 cells must be provided, with a selector switch enabling any of 12 or 13 cells to be cut out, to maintain the voltage constant as indicated by a voltmeter.

2. Speed of film = 90 ft. per minute.
Speed of spool at start of reel =

$$\frac{90 \times 12}{5\pi} = 69 \text{ r.p.m.}$$

Speed of spool at end of reel =

$$\frac{90 \times 12}{14\pi} = 24\tfrac{1}{2} \text{ r.p.m.}$$

3. The term "96 c/s flutter" means that the film runs alternately fast and slow 96 times per second. It is probably due to interaction between the sprocket teeth and the perforations at some point in the sound head—possibly to strained perforations or worn sprocket teeth. Its effect is a roughness of sound.

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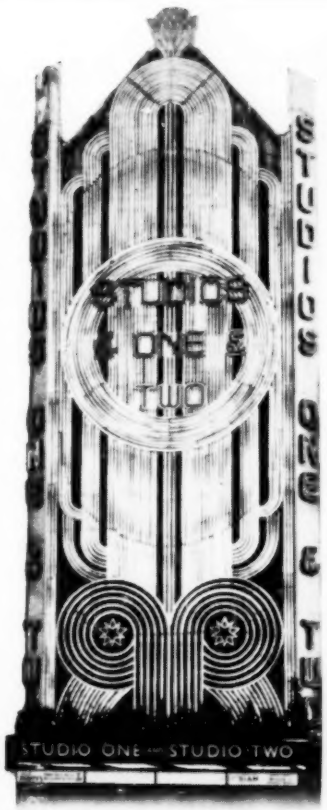

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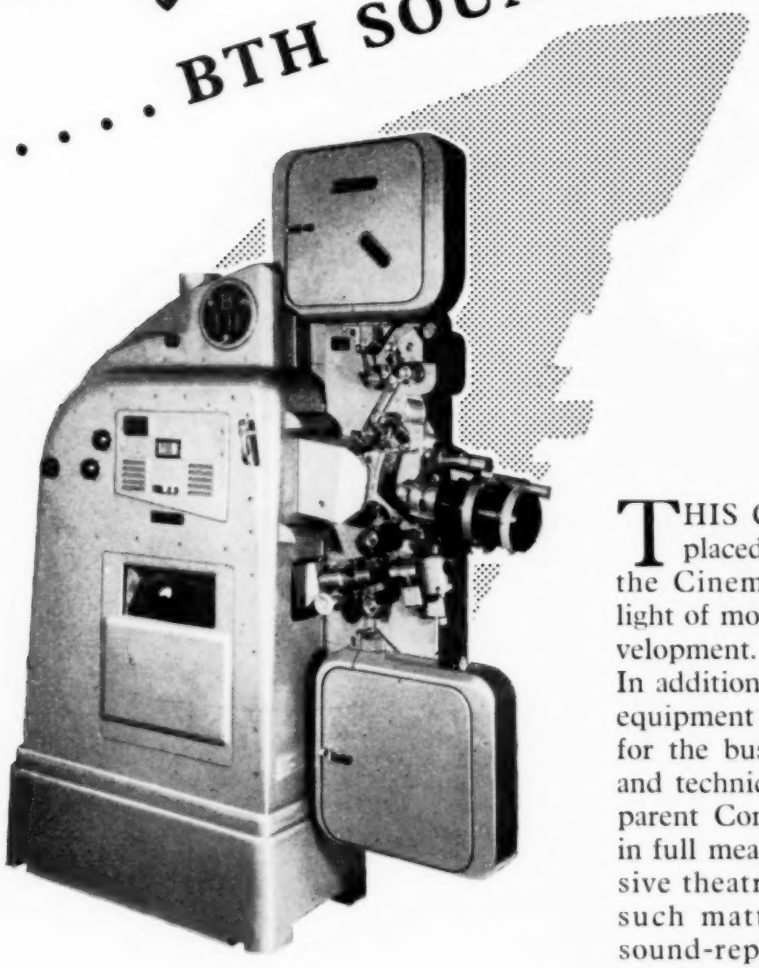

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